Annex C: Training and Leader Development

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General

The Army Vision of being more strategically responsive and dominant at every point on the operational spectrum is about people, readiness and transformation. People are the centerpiece of our formations, and leadership is our stock in trade. Training Soldiers and growing leaders remain essential missions for the Army. Soldiers must be highly trained across the spectrum of military operations. Leaders must be educated for rapid synthesis of information, intuitive assessments of situations, and rapid conceptualization of friendly courses of action. They must be comfortable with giving and executing decision-type orders. They must be able to clearly define their information requirements and, most importantly, develop and effectively communicate their intent. Units and leaders must be highly trained and disciplined in the use of information technologies that can assure timely delivery of critical information. A main effort in Army Transformation is linking training and leader development to prepare Army leaders for full spectrum operations. Linking these two imperatives commits the Army to training Soldiers and growing them into leaders. Training and Leader Development functional activities are primarily coordinated within the Transformation Campaign Plan in the Trained and Ready axis in Lines of Operations 3, Manning and Investing in Quality People; 4, Maintain Unit Readiness and Training; and 5, Training and Leader Development.

The Army identified seven Training and Leader Development Imperatives in the Army Training and Leader Development Officer Panel (ATLDP-O) that are keys to success in achieving the Transformation objective. The seven imperatives, pending the results of subsequent panels, served as the baseline for management of Army training and leader development and are categorized as: Army Culture, the Officer and Noncommissioned (Leader) Education System, Training, Systems Approach to Training, Training and Leader Development Model, the Training and Leader Development Management Process and Lifelong Learning.

The Army Training and Leader Development Panel Officer Study was the first step in addressing leader development concerns. Assessment will continue through completion of the Noncommissioned Officer (NCO), Warrant Officer, and DA Civilian studies. The NCO panel convened its Strategic Conclusions and Recommendations Conference in late November 2001 and expects to publish its final report in the second quarter of FY02. The NCO Study's emerging strategic findings and conclusions fall under six of the seven imperatives established during the ATLDP Officer Study—Army Culture, the Education System, Training, Systems Approach to Training, Training and Leader Development Model and Lifelong Learning. The Warrant Officer study is

underway and will be followed by a DA Civilian study.

Appendix 1: Initiatives within the Imperatives

Army Culture

The Army recognizes the strong relationship between Army Culture and the quality of training and leader development programs. Our culture is the common thread running throughout all aspects of Army training and leader development. The Army must operate routinely within an acceptable band of tolerance to effectively train Soldiers and grow leaders; thus, an Army Culture imperative has been initiated. The underlying theme of this imperative is to demonstrate the Army's commitment by providing values-based leadership and well-being for our Soldiers and their families. The Army Culture imperative addresses numerous issues to include the concepts of an Army service ethic and officership, and the officer's role in the Army profession; the well-being of Soldiers and their families; Officer Personnel Management; and Mentoring.

An operational definition of the Army Service Ethic has been developed and FM 1, *The Army*, has been published. Doctrine on Officership and the Army Profession is being developed and will be published in FM 6-22, *Army Leadership*. The Army has demonstrated a commitment to the well-being of our Soldiers and their families. This commitment will be demonstrated through a coherent effort to monitor and resolve many issues that affect the well-being of Soldiers and their families. This commitment includes efforts to address issues in medical care, education, family support, housing and installation support, and many others. A Well-Being Division has been established to focus efforts and a Well-Being Campaign Plan is being developed.

Mentorship is a proactive commitment to foster growth in Army leaders based on mutual trust and respect. Mentorship is a combat multiplier that magnifies the effects that counseling, role modeling, coaching, teaching and advising have on leader development. The framework for the Army Mentorship Program is in place. Mentorship can be viewed from various perspectives. For some, mentorship is a relationship between a leader of senior rank and a leader of junior rank—a relationship that has both professional and personal aspects. Because the relationship is personal in nature it cannot be institutionalized as an Army program. Another view of mentorship is that it is the passing of knowledge and experience from an experienced individual to someone with less experience. This interpretation can clearly be institutionalized within the leader development and education system. Leader development through mentorship can be accomplished by assigning additional senior instructors to the junior level courses, creating a reach-back system that allows Soldiers in the field to access subject matter expertise and experts throughout the Army, and educating our force on the powerful leader development aspects of mentoring and each Soldier's professional responsibility to put these concepts into practice.

Army Culture is representative of the goodness in American society as evidenced by the Army's adoption of the seven core values: loyalty, duty to country, respect, selfless service, honor, integrity, and personal courage. These values play a critical role in shaping the beliefs of Army Soldiers and leaders. Leaders must be sensitive to instituting any policy or procedural changes that widen the gap between Army beliefs and practices and make it more difficult to train Soldiers and grow leaders.

Leader Education System

The Army's officer and NCO education systems are key in inculcating full spectrum operations doctrine throughout the Army and developing leaders who know "how to think." Recent Army Training and Leader Development Panel reports indicate, however, that the quality and relevance of the Officer Education System (OES) and Non-Commissioned Officer Education System (NCOES) instruction are not meeting the expectations or needs of many officers and NCOs. Accordingly, these education systems are being transformed to meet the requirements of the Objective Force. The end state of this transformation process is an officer and NCO corps of self-aware and adaptive leaders, trained and educated to standard, and committed to life-long learning. Achieving this end state requires new approaches that focus each school on a central task and purpose, links schools horizontally and vertically in the educational process, synchronizes the educational and operational experiences of officers and NCOs, and educates to established, common standards. Several principles will guide the transformation of institutional training and education:

- Right education, right leader, right place and time
- Bonding, cohesion, and trust in cohorts
- Combined arms and joint operations
- Sequential and progressive
- Standards, assessment, feedback, and accreditation
- Life-long learning
- Reinvigorating the study of history
- Rekindling the passion for training

To support attainment of critical leader skills, knowledge, and attributes, resident school curricula will increasingly focus on teaching the art and science of battle command in both war and stability and support operations. The increasing importance of self-aware and adaptive leaders in full spectrum operations requires OES and NCOES to educate Army leaders on these qualities. The contemporary operational environment requires leaders who can think critically and, when necessary, devise innovative solutions to new and unexpected challenges. Specifically, leaders must be able to visualize the operation, describe it in terms of intent and guidance, and direct the actions of subordinates within their intent, all against a hostile, thinking enemy. Resident curricula must be designed to instill an appreciation for this learning requirement, while teaching leaders to be mission-focused, performance-oriented, technically and tactically competent, self-aware and adaptive.

Training

The Combat Training Center (CTC) program and the fundamentals of Army training doctrine are sound but must be adapted to the changed strategic environment. The Army training system is being revitalized by updating training doctrine, improving home station training, and modernizing the CTCs. Training doctrine (FM 7–0 (25–100), *Training the Force*, and FM 7–10 (25–101), *Battle Focused Training*) is being adapted to account for the Contemporary Operational Environment (COE) and linked to joint operational (FM 3–0 (100-5), *Operations*) and *leadership* (FM 6–22 (22–100), *Army Leadership*) doctrine. The Army must provide commanders with the necessary resources. This includes increasing the availability and quality of Training Aids, Devices, Simulations and Simulators (TADSS) to support training.

The availability and quality of TADSS to support training will be increased. Embedding training capabilities developed through the Simulations and Modeling for Acquisition, Requirements and Training (SMART) initiative, is the preferred method of fielding models and simulations. Although it is not economical to retrofit fielded systems with embedded training capabilities, Project Managers and Program Executive Officers should focus training resources in this area. Fully embedded training capabilities and performance support systems offer many advantages to Soldiers, crews, units, and leaders; combat, training, and materiel developers must work closely to ensure that the right mix of embedded, appended, and stand alone TADSS is procured. Deputies for Systems Acquisition, Project Managers, Program Executive Officers and Major Army Commands (MACOMs) have been directed to conduct a thorough analysis of all TADSS requirements, fielding schedules, upgrades, and post production software support. TRADOC is reviewing and validating TADSS distribution for fielded and programmed systems to ensure compliance. Project Managers will adjust programs as appropriate.

CTC instrumentation, simulations and training aids are essential to achieve the goals of the CTC vision. The Army will achieve instrumentation commonality across the CTCs, which accommodates a standard after-action review to enable a fluid exchange of information and lessons learned. Tactical engagement systems must replicate the effects of future weapon systems, such as non line-of-sight weapons, and be inextricably linked to development of common instrumentation architecture. Enablers that facilitate a first-class training experience, common training instrumentation architecture, instrumented weapon systems, digital ranges and targets, Army Battle Command System (ABCS) digital linkages for observer-controllers, and instrumented maneuver live fire and urban operations are essential to CTC relevance. The future family of simulations must support CTC training. Program Managers will include CTC considerations in their system fielding plans and life cycle planning.

The purpose of the Army's CTCs is to develop leaders. Their mission, according to Army doctrine, is to provide highly realistic and stressful combined arms training that approximate actual

combat. Today's CTCs provide tough, realistic, multi-echeloned, and fully integrated training for Soldiers, leaders, and units. They produce bold, innovative leaders to deal with complex situations, flexible Soldiers with the warrior ethos, and well-trained units. The CTCs of the 21st Century must continue to achieve these results across the full spectrum of conflict. The history of the CTC program and the nature of future threats attest to the importance The Army must continually place on training the nation's Soldiers. The CTCs are leadership laboratories where units train under the watchful eyes of experienced observer/controllers. CTCs link the individual leader, the unit, and the institution together and have a synergistic effect on the leader development system as a whole. Along with operational deployments, the CTCs provide the most realistic, comprehensive, and multi-dimensional collective training experiences for units as they evolve into the Objective Force. Leaders are developed and mentored by experienced observer/controllers and receive feedback through an extensive After Action Review (AAR) process. Units train and improve collective skills and their effectiveness is measured in accordance with standards against a superbly trained, thinking opposing force with full-spectrum capabilities.

The Army must recapitalize, modernize, staff, and resource the CTCs to provide full spectrum, multiechelon, combined arms operational and leader development experiences. CTC modernization must include digitizing the CTCs at the same rate the Army digitizes to enable the CTCs and their Observer Controllers (O/Cs) to provide relevant stressful training experiences and accurate AARs. Additionally, each CTC must have the capability to exercise full-spectrum operations in a COE. The post Cold War World presents new strategic and operational challenges for the United States, which are incorporated into the COE. The COE includes key variables and problems for U.S. Armed Forces when conducting military operations in today's strategic environment. The OPFOR adjusts from a multi-echeloned force with known templates to an OPFOR that is less predictable, asymmetrical and full-spectrum capable. This COE places a new set of demands and educational requirements on future leaders in the areas of Joint Training, Warfighting Capabilities Training, and Technical and Tactical Training.

Joint Training

Leaders are increasingly required to lead joint, multi-national, and interagency operations. We must reengineer leader development and training programs to incorporate broader Army, joint, multi-national, and interagency knowledge and perspectives. The end-state will be Army leaders who demonstrate the values, character, competency and confidence to lead Soldiers, sailors, marines, and airmen—in any mission.

Warfighting Capabilities Training

The Army requires Soldiers and leaders steeped in the warfighting capabilities and doctrine required to execute combined arms operations in a full spectrum environment. They must be knowledgeable and experienced in how to analyze the ability of their units to operate and sustain themselves on the battlefield. Warfighting modules must

teach leaders standard U.S. Army techniques and procedures for tactical decision-making and the tactical employment of companies, battalions and brigades in combined arms full spectrum operations. Warfighting training must be tactically focused, hands-on, and execution-oriented. Training should culminate with an exercise that tests the leaders ability to rapidly make decisions and synchronize all of the battlefield operating systems within the battlefield framework of full spectrum operations. The intent of the warfighting curriculum is to produce an officer, warrant officer, or senior NCO who is proficient in combined arms maneuver, support, and sustainment of companies, battalions and brigades.

Technical and Tactical Training

Competency is a major requirement for Army leaders and the foundation of this competency is achieved in technical and tactical training. The institutional schools play the premiere role during the initial stages of a leader's career when he receives the grounding in his functions. Schools will provide functional training in the new education system but this training will be delivered increasingly through distance learning and as exportable training support packages to the Soldiers and units in the field. Schools will continue to fill the role of subject matter expert and provide a reach-back capability for Soldiers outside of the schoolhouse to reach back to the institution for just-in-time information.

Systems Approach to Training (SAT)

SAT is a systematic, spiral approach used to develop, implement, and evaluate collective, individual, and self-development training for the Legacy, Interim, and Objective Forces. It determines if training is needed; what to train; who is trained to what standard; where the training is presented; and what resources are required.

The SAT process is fundamentally sound but not well executed due to a shortage of training developers. Automation has compensated for some of the personnel shortfall by increasing TRADOC's ability to develop products faster and to make them more available to Soldiers. TRADOC is currently studying ways to further optimize the process. The study's goals are to make the training development process more relevant to the Objective Force environment and to produce products at a faster rate. This initiative will examine four focused areas: process, management, automation, and resources. Investments will be made to exploit network technology to develop a more streamlined and effective SAT process where training and doctrine publications are web-based and updated as the lessons learned from the CTCs are validated. The Army is recommitting to and reinforcing the importance of Standards-Based Training. MTPs/Army Training and Evaluation Plans (ARTEPs) are being validated and updated with priority to the Interim Brigade Combat Teams (IBCTs).

Training and Leader Development Model

The Training and Leader Development Model being developed will show how training and leader development are linked. It will clearly communicate The Army leadership's intent and must be understandable for junior leaders, staffs, and outside agencies. The model is to be based on Army Culture; mandate standards for Soldiers, leaders, and units; provide feedback to Soldiers, leaders, units, and the Army; and balance operational and educational experience through education, assignments, and self–development.

The model will include an assessment and feedback process to enable self-examination of training and leader development systems. This process will allow the ability to establish priorities, adjust, and allocate resources to training and leader development programs to continue producing self-aware and adaptive leaders in trained and ready units. The products of the model are leaders who are mission-focused, doctrinally sound, performance-oriented, train as you fight, primary trainers who know themselves, and support lifelong learning and mentorship. The model will be all encompassing with respect to focusing institutional training and education, operational assignments, and advocating self–development in a lifelong learning paradigm. All three parts of the model are critical in producing quality leaders and all three, the institution, the unit, and the individual Soldier and leader, share responsibility for the training and leader process.

Institutional Development

The Army must be supported by an institutional training and leader development system capable of providing the foundation for embedding full spectrum operational skills. This system must provide training (how to do) and education (what to know) and the opportunity to acquire the skills, knowledge, and attributes needed for the Objective Force. It must leverage the Army School System (TASS) assets, both Active (AC) and Reserve Components (RC), to maximize all training capabilities and foster unity of the Army team in support of Army readiness today and Objective Force readiness tomorrow. The training support system will focus on maximizing training readiness at units through embedded training capabilities in all their major warfighting systems. The role of the training and leader development system is very important, especially at major transition points—civilian to Soldier and direct leadership level to organizational leadership level.

Army readiness requires a holistic and mutually supporting training and leader development process. Each portion of the leader development triad (institution, unit, self) has a specific role and focus. The focus at junior levels is to inculcate new leaders and Soldiers with a common set of values and provide them with the minimum skills and knowledge necessary to achieve success in their initial assignment. At intermediate and senior levels the focus shifts to providing an educational environment and curriculum that increasingly exposes leaders to the nature and the art of war along with the scientific conduct of war. The Army needs leaders who know "how to think"

versus “what to think” at every level of command. To support this requirement, the institution must create an academic setting that produces intelligent, adaptive, politically astute, self-aware leaders that are capable and comfortable on the 21st Century battlefield.

Operational Development

Operational assignments play an important role in leader development by providing the Soldier the opportunity to translate theory into practice, and acquire specific expertise that is difficult to teach. Unit assignments give Soldiers the opportunity to practice the skills, knowledge, and behaviors learned in the institutional training base. Repetitive performance requirements refine the leader's skills, broaden knowledge, and shape behavior and attitude. Here a leader gains knowledge that is grounded in experience—and this expert knowledge can become truly internalized.

The Army requires leaders who have learned to lead and possess the skills and experience gained through operational assignments as well as the confidence and competence needed for more complex and higher levels of assignment. A Warrior Knowledge Network (WKN) will provide reach-back capabilities to the institution. WKN will provide the training products needed to continue the leader's experiential development in full spectrum complex operations at home-station and while deployed. It will also provide, in a useful format, the focused knowledge needed for job performance.

To meet the emerging leadership requirements of the Objective Force, units must have built-in structures for mentoring, coaching, counseling, teaching, and developing leaders through experiential training. Soldiers developed by noncommissioned officers, officers, and warrant officers who use their leadership skills in realistic training exercises will become the leaders of the Objective Force. Leaders learn the conduct of war by practicing fighting, maneuvering, supporting, and sustaining their unit in a field-training environment–experiential training. They learn the technical, tactical, and leadership requirements of the next major career phase through successive assignments in a unit where experiential training is the norm.

Self-Development

The Army must have Soldiers and leaders who continuously seek to improve their mental acuity and educational background. Self-development initiatives shape a leader's development by focusing on maximizing strengths, minimizing weaknesses, and ensuring that personal goals, needs, and objectives are realized. Self-development is a continuous, career-long process. It takes place during institutional training and development and during operational assignments, and should stretch and broaden the leader beyond the job or training requirements. Self-development actions may include self-study, professional reading programs, and civilian education courses that support the individual's developmental goals. Self-development supports the requirement for all leaders to be self-aware—to know their strengths and weaknesses in order to take the necessary steps to improve their skills,

leadership, and attributes. Army Culture and lifelong learning management actions will support Soldier self-development through distance learning, force structure, and policy adaptations.

The focus of self-development is twofold: to fill individual Soldier or leader training, experience, and education voids; and to ensure the Soldier meets personal and professional goals. The individual self-development portion of the leader development program is a joint venture between the individual and his or her chain of command.

Training and Leader Development Management Process

The Army has implemented a training and leader development management process that is iterative, collaborative, and comprehensive. The process is designed to elicit relevant issues in a timely manner. This process starts with issues developed and forwarded by the Center for Army Leadership (CAL), as the Training and Leader development executive agent, or by other sources to the Training and Leader Development Councils of Colonels. The Councils of Colonels, focused on the three training and leader development domains (Home Station/Deployed, CTC and Institutional), are supported by three training enabler Council of Colonels (Training and Leader Development, Training Mission Area, and Standards in Training Commission) and staff agencies responsible for synchronization and integration of other sub-components within the strategic leader training and development program to include accessions, evaluations, selections, promotions, and others. Results of the Councils of Colonels and other subcomponents are synchronized and recommendations are provided to the Army leadership through the Training and Leader Development General Officer Steering Committee (TLGOSC). This process results in prioritized issues, a measure of progress in addressing training and leader development issues, a means to adjust priorities, and recommendations to the Chief of Staff, Army (CSA) about applying resources.

Lifelong Learning

Learning organizations support self-awareness and adaptability. Lifelong learning requires standards, tools for assessment, feedback and self-development. Part of Army Culture is the commitment by its leaders to lifelong learning through a balance of educational and operational experiences, complemented by self–development to enhance knowledge that educational and operational experiences do not provide. To be an organization that supports this lifelong learning the Army must—

- Provide the training and educational standards and products that are the foundation for standards-based training and leader development.
- Provide the doctrine, tools, and support to foster life long learning through balanced educational and operational experiences supported by self–development.
- Develop, fund and maintain an Army-wide Digital Training Facilities (DTF) using information technology where Soldiers, leaders, and units can go to find standards, training and education

publications, doctrinal manuals, assessment and feedback tools and can access distance and distributed learning programs for self–development and lifelong learning.

- Provide the doctrine, tools, and support to inculcate the concept and practice of lifelong learning, self-awareness and adaptability in the Army's culture.
- Teach the importance of lifelong learning and the competencies of self-awareness and adaptability throughout the leader education system. Strengthen this approach in organizations and in self-development.

Conclusion

People are central to the Army—they are the keys to achieving ready forces today and a transformed Army tomorrow. Effective Soldiers and Leaders—those who are self-aware, adaptive, and innovative—will solve unforeseen operational problems. Developing and maintaining this edge in the human dimension is critical to the success of Army Transformation and sustaining day-to-day operational readiness. The Army is committed to the development of its leaders at all levels. This commitment extends equally to all officers, warrant officers, NCOs, and Department of the Army Civilians of the Active Army, Army National Guard, and U. S. Army Reserves. Leaders must be appropriately developed before assuming and while occupying leadership positions — to ensure they are competent in and confident of their ability to lead at the level assigned. In short, the goal is to develop competent, confident leaders who can exploit the full potential of present and future doctrine.

Appendix 2: Objective Force (OF)

Requirement

Objective Force training and leader development must produce multifunctional leaders, Soldiers, and teams capable of full spectrum operations on the complex, demanding battlefields of the future. It must produce lethal, cohesive, and versatile organizations that achieve the highest state of operational agility and combat readiness through the balanced use of live, virtual and constructive training. The design of the Objective Force must allow its leaders to be capable of training their units without significant external support packages as well as to be innovative, creative risk-takers in both training and warfighting. Embedding training support packages and performance support systems into the Objective Force's organizational and system designs will further enhance readiness. Objective Force weapon platforms and equipment will be enhanced with a common set of operational and user interfaces that look, feel, and function in a similar fashion during training or combat operations.

Training Challenges

The challenges posed by the changing operational environment, range of missions, and future operations require reevaluation and adjustments of all levels of individual and collective training at the institution and in units. Training for all ranks and military occupational

specialties must focus on gaining and sustaining high levels of experience on the technical and cognitive skills essential for operating and integrating the digitized command and control systems and on information assurance to maintain their security. Information systems literacy must be accompanied by proficiency in management of the vast quantity of information these new systems will make available. Training must assure that Soldiers, leaders and units are enabled rather than encumbered by technology. Training systems must keep pace with an ever-accelerating rate of change in required skills and knowledge covering broad fields of endeavor that must be developed to enable the Objective Force.

Due to the complexity of evolving systems and concepts, Soldiers will require more time to acquire and sustain the necessary proficiency using institutionally developed training before, during and between operational assignments. Distance learning and other innovative training systems and technologies will minimize the time spent away from units. Such training support capabilities will also minimize personnel turbulence, thereby promoting unit cohesion. Training also must help build an environment that challenges Soldiers and leaders as well as supports development of opportunity-based organizations that Soldiers want to join and in which they desire to play a continuing, active, integral role.

OF Training Characteristics

Training gives the Army the capability to execute its published tactics, techniques and procedures (TTPs) concepts and doctrine. Mental and physical fighting agility only comes through experience and repetitive practice under demanding conditions. In accordance with the Army Training Strategy, OF training will be unit training that includes individual, crew, team, squad, higher training where Soldiers, and leaders collectively prepare for their unit's missions. Unit training also will include the critical battle staff training essential to synchronizing the effects of joint and combined arms operations on the battlefield. OF training will exploit the right mix of live and simulation tools to maximize the effectiveness of individual and collective training.

Some of the training characteristics will be:

- Training reoriented from process to experiential focus.
- Training requirements achieved through functional, job-related training-anytime, anyplace.
- Fully embedded, integrated, seamless, common training architecture as a critical component of the operational architecture that provides:
    - Synthetic training environment that links live, virtual and constructive simulation with battlefield systems.
    - En-route training and mission rehearsal.
    - Integrated, networked and embedded training aids and devices.
    - Improved unit readiness-embedded individual replacement training systems.
    - Portable training assets that enable units to train anyplace, anytime.

- Combat training centers (CTCs) serve as sites for capstone events to exercise doctrine and provide near combat experience.
- User friendly, reconfigurable, tailorable, and re-usable training support packages.
- Integrated training management capabilities.
- Integrated performance support and reach back capabilities.

Unit Training

By design, unit training is the ultimate Soldier and unit experience before entering combat operations. OF commanders must continue to efficiently and effectively integrate all available resources to conduct unit training. Unit training must enable the combined execution of the OF Soldier, leader and battle staff to interact in a seamless, synergistic manner to reach operational capabilities and levels of readiness far beyond today's expectations and standards. OF unit training must maximize its operational potential by leveraging the characteristics of OF training to achieve and sustain the highest levels of operational readiness. Every unit must encompass Soldiers, staff members, and leaders that are proficient in performing their full array of assigned individual and collective tasks though use of rapid communications to interact through horizontal and vertical linkages to meet the most demanding standards of combat operations. To attain these high standards, units will train in a seamless operational/synthetic environment that enhances their training experience. This seamless environment will provide training opportunities for units, leaders, staff officers, and staff cells, as well as independent individual self-development training. Each OF unit will be supported with:

- A Combined Arms Training Strategy that has unit, individual and self development components;
- A fully, seamless, embedded interactive training management system;
- A performance support system that provides "just in time" training, tracks Soldier errors for future training, and provides a portal to "reach back" for training not immediately available from the system;
- A training support infrastructure that supports unit training at homestation, deployed, CTCs, and institutions;
- Institution-developed nested, sequential, gated training products and doctrine that are always available.

The Training Support System (TSS)

The training concept for the OF will exploit revolutionary training and leader development capabilities using a robust training support system-of-systems approach. The training support provided to the triumvirate of institution, operational assignments, and self-development is critical to producing quality Soldiers and leaders.

This system-of-systems approach, or TSS, will enable self-development, individual, and collective training at the institution, home station, deployed operational theater, and CTCs.

The TSS will enable implementation of an Army Training Strategy focused on developing adaptive leaders and lethal small units given the importance of time, resources, and environmental stewardship. The Army's Soldiers and leaders must be competent and confident in their warfighting skills and possess the ability to rapidly adapt to changing technological developments and mission requirements. The TSS will capitalize on proven and emerging training and information technologies to deliver quality functional training via distance learning, employ synthetic training tools to sustain combat readiness, and develop leaders through experiential learning and feedback in a life-long learning environment. While live training will remain the cornerstone of the OF, integrated virtual and constructive applications will be leveraged to overcome training constraints.

The TSS will:

- Enhance individual, unit, institutional, and self-development training by providing technologies and architectures that increase Soldier and leader accessibility to training products anytime, anywhere.
- Support the development of training, and doctrine products while minimizing duplication by horizontally and vertically integrating the course content and delivery methods.
- Provide standards and architectures that allow for the development of integrated, interoperable training support and training management outputs and services.
- Provide the means for exercise control, training and scenario management, and battlefield realism through automated training instrumentation systems and models and simulations, and tactical engagements systems.
- Provide the means to perform verification, validation, and configuration management.
- Enhance the ability to evaluate training events through automated data collection, reduction, and application strategies and remediation tools.
- Provide scenarios for effective training, testing, and remediation to ensure consistent training support strategies, standards, and formats.

Embedded Training

Paramount to the OF training and TSS concept will be individual and collective training applications that are fully embedded in the design of the Objective Force systems, Future Combat Systems (FCS) and Objective Force Command, Control, Communications, Computer, Intelligence, Surveillance, and Reconnaissance (C4ISR) systems. The ability to train and sustain Soldier skills will be a key performance parameter in materiel acquisition programs that support the OF and Army modernization and recapitalization programs of legacy systems identified for the Objective Force. The materiel design will provide commanders a fully integrated, non-detachable, embedded training system usable on demand to support individual and collective training at institutions, home station, CTCs, while deploying, or

deployed and employed. As a minimum the embedded training capability will:

- Provide training modes that overlay the system's normal operations.
- Allow initial and sustainment training (Institution, Home Station, Deployed/CTC).
- Allow individual and collective practice with equipment.
- Generate operational input data (Target, Threat, Enemy, Friendly, etc.).
- Feed input to the operational equipment by means of normal input, output, and displays.
- Present input, output, and displays realistically.
- Require users to perform normal task duties in response to input, outputs, and displays.
- Exercise total system (Including degraded operations).
- Enable seamless live, virtual, and constructive training.
- Allow training data collection, management, and assessment.
- Provide individual and collective feedback (AAR, coaching, mentoring, etc.).
- Enable tailoring of unit individual and collective training requirements.
- Provide seamless interface between training and operational environments.

Training Architecture

The Operational Architecture will bring units, battle staffs and commanders together in virtual work environments freeing commanders from their command posts, enhancing the capabilities of supporting staffs and facilitating the use of expertise from linked units and supporting theaters. To maximize this operational capability, the training architecture will be an inherent part of the operational architecture and will play a central role in training commanders and their staffs in decision making skills, and a greater role in training at lower organizational levels. Using their assigned systems, commanders and staffs at all levels will be able to conduct constructive training events that currently require dedicated facilities and overhead resources.

In order to maintain both system and unit proficiency, the training architecture must support individual and unit training in any environment and units must consistently train as a part of a combined/joint arms team. The training architecture will enable embedded training to be modular and adjustable to the skill level of the operator. Systems with embedded training capabilities must have the ability to train a unit at the individual level or collectively, with models, stimulations, and simulations that allow maximum flexibility with minimum overhead. The training architecture, inherent in the design of the operational architecture, will provide reach back, reusable, configurable training and allow all Soldiers to train as they will fight in any operational environment.

Institutional Training

Our current curriculum models are derived from the McNair mobilization, education and training model that produced the

units, Soldiers, and leaders required to meet the operational requirements of World War II and subsequent Cold War. Based on total mobilization and focused on the production of Soldiers and leaders with narrowly focused, branch-centric basic skills, these models are no longer sufficient.

Training and Doctrine Command (TRADOC) must provide The Army with Soldiers and leaders with standards-based competencies who can successfully lead and train their units and fully integrate combined arms capabilities in a full-spectrum operational environment. This combined arms, full-spectrum operational perspective is the foundation for the development of the curriculum to support all our training and education requirements and provides the strategic underpinning for the human dimension that leads the Army's Transformation to the Objective Force.

Transformation of the Professional Military Education (OES, WOES, NCOES, DACES) will utilize key findings from the applicable Army Training and Leader Development Panels (ATLDP) and link to anticipated requirements in developing full spectrum leaders. Focusing on crucial development periods in a leader's career (lieutenant through major), the new PME will build military and DA civilian leaders for the Objective Force through progressive and sequential education experiences.

To implement key findings of the Officer ATLDP, training and leader development will focus on extending company grade officers in their first unit until after company-level command to increase competence and confidence in small unit operations. The Basic Officer Leader Course (BOLC I/II) will replace current branch officer basic courses with two phases, first embedding service to Army, officership, and platoon leader competencies (Phase I), then relocating lieutenants to respective branch schools for technical, tactical, and functional training (Phase II). Upon selection for promotion and assignment as a staff officer, officers would be programmed for the Combined Arms Leaders Course (CALC) to receive tailored training for that next portion in a full spectrum environment. When selected for command, officers would report to the Combined Arms Battle Commanders Course (CABCC) to receive challenging combined arms training at the company level. This course is envisioned to consist of a distance learning (DL) prerequisite, a Center-Branch technical phase, and an experiential phase at a CTC. In the field grade years, the proposed Intermediate Level Education (ILE), replacing the current CGSOC format, would provide a broader operational warfighting educational perspective in joint and operational doctrine and warfare. PME for the Pre-Command Course would also include an experiential phase at one of the CTCs while the Army War College would remain the same.

The end result in this proposed career path for Objective Force leaders is full spectrum officers at every level who think and adapt earlier in their careers, possess technical competence, are committed to continuous learning, and are grounded in doctrine. It also will produce officers who have received a military education that has first trained them as Army officers and leaders, then prepared them for a specific career field or

functional area. Pilot courses for the new OES courses are scheduled for FY02/03. The respective Training and Leader Development Panels for Warrant Officers, NCOs, and DA Civilians (programmed for completion in FY02) will provide necessary input for implementation of curricula and leader development redesign.

In support of a transforming Army, our training and leader development programs must prepare Soldiers and leaders to conduct full spectrum operations upon arrival in their units. Accomplishing this goal requires that institutional training and education be mission-focused, doctrinally based, and performance-oriented. We must develop standards and expectations for each course, assess performance against these standards, and provide feedback. PME will reinforce the Army's commitment to life- long learning by providing standards based instruction. Retraining will be conducted as required. Building confidence, teamwork, trust, cohesion, and competence in students and cadre is paramount. TRADOC is committed to ensuring that the U.S. Army remains the world's best—we owe it to our Soldiers and the nation.

Homestation Training

The training support infrastructure must provide a seamless training/operational environment to meet individual, unit, and multi-echelon training requirements supported by an invisible simulation and stimulation, reach-back, evaluation and assessment tools, and performance support training. To be defined is what will encompass this training environment. Fixed Tactical Internets, Battle Simulation Centers, Mission Support Training Facilities, Multi-Purpose Digital Range Complexes, Home Station Instrumentation Systems, etc., may be required to support institutional, individual, and unit training depending on the robustness and capabilities of the OF operational systems. As unit commanders do today, OF commanders will continue to adapt and prioritize their Mission Essential Task List and training plan to meet their ever-changing, full spectrum mission set. Unlike today's units, OF units will use a robust performance support system to access assessment information to maximize training opportunities and tailor training to meet the needs of Soldiers, trainers, leaders, and managers to enhance operations of sections and combat readiness of units.

Combat Training Centers

Short of actual operational missions, the full–spectrum operational environment required to produce the Soldiers and leaders needed for the Objective Force will occur at the Combat Training Centers (CTC). CTCs provide the most realistic, comprehensive, and multi-dimensional collective training experience for units as they evolve into the Objective Force. Leaders are developed and mentored by experienced observer/controllers and receive feedback through an extensive After Action Review (AAR) process. Units train and improve collective skills, and their effectiveness is measured against a superbly trained, free–thinking and adaptive opposing force.

Training When Deployed

The OF systems will allow the Soldier and unit to train before, during, and after deployment into the operational area. For the Soldier and unit, training in the deployed domain will be just like training at homestation or a CTC. The deployed training environment will be seamless, training products will be readily available, and simulation/stimulation will provide for robust training for each OF Soldier and unit. This will allow them to both enhance their theater specific skills and sustain operation readiness while responding to mission requirements.

Conclusion

Successful Army operations are grounded in the human dimension—the heritage of America's Army. Effective Soldiers and leaders—those who are adaptive, self aware, and innovative—will solve operational problems not now imagined. Developing and maintaining this edge in the human dimension is critical to the success of Army transformation to the Objective Force. Along with an investment in technical innovations we must make significant and long-term investments in training and leader development to maintain the advantage in full spectrum operations.

Appendix 3: Training Modernization

General

Training Modernization has not kept pace with the Army's Force Modernization effort. The Army is fielding systems, building new organizations, and crafting new doctrine without the associated Training Support System (TSS), i.e., the training enablers and training support infrastructure needed to train to standard. Additionally, decreasing resources, increasing weapons systems range and lethality, increased deployments, and environmental constraints are limiting the Army's ability to train. These factors, coupled with the broad force projection mission, the need for mission rehearsal capabilities, and the digitization of future forces, point to a need to leverage the rapid growth in technology to improve training proficiency with the smart use of TADSS and automated command and control (C2) systems. System and non-system TADSS support the major objective of an overarching Army training strategy, that being the establishment of policy supported by adequate resources to accomplish defined training and mission rehearsal capabilities for the Legacy, Interim, and Objective Forces. Training transforms people, equipment, and doctrine into capabilities. From a modernization viewpoint, this objective is supported by the effective and efficient integration of systems and non-systems training technologies and development within the live, virtual, and constructive simulation environments across the homestation, deployed, CTC, and institution domains.

While today's TADSS supplement live training, tomorrow's TADSS must provide the commander with deployable and portable combined arms collective training and mission rehearsal capabilities, extending to include joint operations, and enabling units to train and rehearse missions in a resource-constrained environment at home station

and deployed locations. The vision is to build a synthetic training environment that links live, virtual, and constructive simulation environments with “fair fight” capability. "Digitizing the battlefield" to provide seamless, digital C2 capabilities for the entire fighting force is one of the Army's top priorities. To meet this requirement, multiple initiatives are underway to harness the power of the microprocessor and information technology for warfighters. The goal is to use digital technology to maintain a continuous edge in projecting and employing combat power on future battlefields. Mirroring this effort are initiatives to embed the complex, combined arms structured training of the future into the systems of the digitized force.

The Training Support System (TSS) is a system of systems made up of several parts that are interconnected to form a whole. This system-of-systems approach, or Training Support System (TSS) will enable self-development, individual, and collective training at the institution, home station, deployed, and CTCs. The interconnected parts include training information infrastructure; training aids, devices, simulations, and simulators (TADSS); and training support products, services, and facilities. From these parts come the tangible outputs that trainers and Soldiers need to train effectively. The pieces that link these outputs are the architectures and standards that enable their interconnectivity and interoperability. The integrated TSS must support training environments that provide Soldiers the skills necessary to deal with a variety of conditions, unknown factors, and different enemy types, including a power, organization, agency, or situation that is an obstacle to accomplishing the mission. While time will remain a fixed or shrinking resource, leaders, Soldiers, and units will require expanded experiences that are more frequent and broadly based to attain full spectrum dominance within this new environment. It will be critical for leaders to be comfortable with exercising the maximum amount of initiative bound only by the commander’s intent. In addition, the integrated TSS must foster conditions that help leaders understand a given situation, enabling them to effectively lead a force that can maneuver rapidly and make contact. It also must be deployable with a unit. It must be capable of operating in immature theaters with no organic infrastructure. In essence, the unit must be able to tailor the TSS with what it initially needs and then modify the capability as training support needs change over time. To accomplish this, the TSS must leverage a fully integrated and often embedded toolbox of live, virtual, and constructive simulations and interactive multimedia instruction with all the supporting requirements in all training environments.

Systems Training. Training with Digital Systems continues to present challenges to the force. Although the Army is fielding digital systems worldwide their integration into training—live, virtual, and constructive environments, lags several years behind. PMs and PEOs must fund the integration, upgrade, and modernization of TADSS as a result of upgrades and modernization to their systems (both hardware and software).

PMs and PEOs fund their systems TADSS along with the weapon system. They also fund integration of their systems and TADSS into the CTCs as well as

changes to all TADSS (system and nonsystem) as a result upgrades and modernization of their systems (ARs 71-9 and 350-38). The G-8 monitors this requirement in the Systems Reviews.

In the long term, embedding training capabilities is the preferred method of fielding TADSS. Embedding training capabilities, developed through the Simulations and Modeling for Acquisition, Requirements and Training (SMART) initiative will enhance training capabilities for the Soldier.

Live Simulation Training is executed under battlefield conditions using tactical equipment. It includes individual and collective field training performed at training institutions, home station, CTCs, live fire ranges, and while deployed in support of military operations. Live training emphasizes the fidelity of field training under battlefield conditions and standards and is supported by a toolbox of TADSS, instrumentation systems, targetry, and training unique ammunition. Aside from gunnery training, live maneuver training normally incorporates Tactical Engagement Systems (TES) to simulate combat conditions. TES training methodology is characterized by free interplay of forces, using a real time casualty assessment system that reinforces training tasks through immediate feedback response to correct and incorrect individual and collective task accomplishment. Live training is the most resource intensive form of training and is used to reinforce skills previously trained during the crawl and walk stages of the crawl-walk-run training progression. While live training can never be replaced, the application of technology can provide live simulations to enhance traditional field/range training and offset restrictions imposed on live training by high technology weapons systems, safety, environmental sensitivities, and higher training costs.

Virtual Simulation Training provides crews, leaders and units with realistic, immersive training experience using man-in-the-loop simulators that approximate the physical layout of tactical weapons systems and vehicles, and is executed on computer-generated battlefields. In the virtual environment, simulators operating on virtual terrain take the place of weapons systems and can be linked together to expand the scope of the training event. Virtual training systems provide commanders with "walk-level" and sustainment training, leader development, and mission rehearsal capabilities. Through frequent and repetitive use and an immediate and total replay AAR capability, virtual training systems assist commanders with the building and sustaining of training readiness. Virtual training also has the advantage of allowing Soldiers to perform tasks too dangerous for the live environment (such as calling for artillery fires on or near an occupied friendly position), provides the capability for rapid changes to scenarios, and facilitates retraining specific tasks until training objectives are met. Virtual simulations allow repetitive training under varying conditions to enable the individual or team to conduct live training at a higher state of readiness, potentially reducing OPTEMPO requirements. Many virtual simulations also provide a link to Army Battle Command Systems (ABCS), thereby providing a realistic training environment for the digitized units and battle staffs.

Constructive Simulation Training is the use of computer models and simulations to exercise the command and staff functions of units from platoon through Joint Task Force. Constructive simulations permit multiple echelons of command and staff to execute their normal warfighting tasks in an extensive exercise without the resource constraints of large bodies of troops. Constructive simulations provide a versatile and cost-effective low overhead training environment that trains leaders on how to visualize the battlespace and to make tactical decisions in a time-constrained, digitized environment. Through the repetitive execution of tactical scenarios followed by AARs, commanders and staff officers gain a realistic understanding of how to take advantage of the enhanced situational awareness afforded by the Army Battle Command System.

Training with Digital Systems continues to present challenges to the force. Although the Army is fielding digital systems worldwide, their integration into training—live, virtual, and constructive environments—lags several years behind. Project Managers and Program Executive Officers must fund the integration, upgrade, and modernization of TADSS as a result of upgrades and modernization to their systems (both hardware and software).

Nonsystem TADSS that Support the Homestation and Deployed Domains

Multiple Integrated Laser Engagement Systems (MILES) XXI. MILES XXI provides tactical engagement simulation for direct fire force-on-force training using eye safe laser "bullets." MILES training has been proven to dramatically increase the combat readiness and fighting effectiveness of military forces. Enhancements include discrete player identification for all participants, enhanced audio-visual cueing effects, event recording and display, increased programmability of weapon characteristics, and increased ability to account for side, flank, corner, and rear shots.

Army Targetry Systems (ATS)/ New Generation Army Targetry Systems (NGATS). ATS provides non-digital, live-fire ranges that incorporate infantry and armor targets, both stationary and moving, that portray realistic opposing target threat scenarios to the Soldier under simulated battlefield conditions. NGATS is the future Army ground targetry system that will provide high fidelity target signatures, evasive targets, shoot-back capability, and remote scoring. Using commercial-off-the-shelf technology NGATS will provide a more reliable system at lower cost. The NGATS will be mobile, transportable, deployable, and capable of continuous support during designated training periods.

Air Defense Targets (ADA Targets). ADA Targets provide targets and ancillary devices for gun live-fire crew weapon qualification and training events currently resourced under STRAC. It provides required training and opportunity training to the Air Defense Soldiers for gun and STINGER missile live fire.

Corps Battle Simulation (CBS) Program. CBS provides a discrete event simulation that is designed

specifically to train Army Corps and AC & RC Division commanders and staffs. This simulation serves as the ground model when linked in the Joint Training Confederation with models from other services. CBS models ground movement, ground combat, artillery, air defense, engineering, NBC, resupply, medical support, maintenance, radar and electronic counter measures, electronic warfare, fixed and rotary wing air operations, special operating forces, and airlift / airdrop. CBS is used during Warfighter Exercisers and allows the commander to fight his organization and assess its training proficiency. The corps and division command and staff personnel fight the battle from field command posts (CPs). CBS is considered a legacy simulation with recent development efforts focused on aviation and air defense improvements. The simulation can be linked to ATCCS using Run Time Manager (RTM) simulation-to-ATCCS interface boxes. However, it cannot link with FBCB2. Until WARSIM is fielded, the Army must sustain (and enhanced as needed) CBS.

Tactical Simulation (TACSIM). TACSIM is a military intelligence training simulation used worldwide to provide training in the intelligence analysis, collection management, and intelligence portion of battle command. TACSIM accomplishes this mission by simulating and/or stimulating a wide spectrum of intelligence operations to include communications intelligence (COMINT), electronic intelligence (ELINT), imagery intelligence (IMINT), and human intelligence (HUMINT). While TACSIM can operate in a stand-alone mode, it typically works in conjunction with other simulation models, such as CBS, to support multi-echelon collective training. In addition, TACSIM fully interfaces with ancillary systems like META-VR (UAV), and the Secondary Imagery Generation System (SIGS) to garner greater fidelity of intelligence systems. TACSIM stimulates most active Army, multi-service, and national intelligence sensors and stimulates training audience organizational equipment such as the All Source Analysis System (ASAS). TACSIM must be sustained and enhanced until WARSIM (and the WARSIM intelligence model) is fielded.

Engagement Skills Trainer (EST) 2000. EST 2000 provides instructors a resource to support virtual marksmanship training at all skill levels for individuals, fire teams, and squads. It offers an opportunity to conduct and evaluate tactical training in a virtual simulated environment. EST 2000 replicates both small arms and crew-served weapons, as well as multiple shooting courses, can support training of up to 15 Soldiers at the same time, and provides an immediate AAR capability. EST 2000 also provides a judgmental use of force training capability through instructor manipulated shoot-don't shoot scenarios.

Close Combat Tactical Trainer (CCTT). CCTT uses various simulators, emulators, and semi-automated forces replicating combat vehicles, weapons systems, dismounted forces, combat support, combat service support, command and control, and opposing forces. It is networked to provide fully interactive unit task training (collective training) on computer-generated terrain. It is being fielded in mobile configurations (platoon level) for the Army National Guard and at fixed sites (company/team

level) to support armor and mechanized infantry training for the Active Component. CCTT supports the collective training of Armor, Mechanized Infantry, and Cavalry units from platoon through battalion/squadron level.

Aviation Reconfigurable Manned Simulator (AVCATT-A). The AVCATT-A system is a dynamic, alternative instructional means to train and rehearse, through networked simulation, in a collective and combined arms simulated battlefield environment. The AVCATT-A system is a critical element of the Combined Arms Training Strategy. It supports institutional, organizational, and sustainment collective (walk-level) training for Active Component and Reserve Component aviation units worldwide. Collective and combined arms simulation exercises will provide commanders with an affordable capability to train supporting individual tasks required to conducting collective training and rehearsals, the unit's mission essential task list, and combined arms wartime mission performance requirements. The AVCATT-A system will interoperate with other simulation systems through local area network and wide area network utilizing broadcast and multicast modes, will be Joint Technical Architecture-Army compliant, will be Synthetic Environment Core compliant, and will achieve fair-fight interoperability with the Close Combat Tactical Trainer. The AVCATT-A system will provide a fair-fight, realistic, high intensity, task-loaded, synthetic combat environment composed of attack, reconnaissance, cargo, and utility aircraft reconfigurable simulator platforms, semi-automated forces workstations, AAR capability, a Battle-Master Control console, and workstations for ground maneuver, fire support close air support, logistics, battle command, and engineer role players.

Close Combat Tactical Trainer (CCTT) XXI. CCTT XXI integrates Force XXI digitized command, control, communications, computers, and intelligence (C4I) systems into CCTT. Systems included are Force XXI Battle Command Brigade and Below (FBCB2) and The Army Tactical Command and Control System (ATCCS). FBCB2 is integrated into appropriate vehicles and command posts to provide situational awareness and command and control to the lowest tactical echelons. CCTT XXI facilitates a seamless flow of battle command information across the battle space, and interoperates with external command and control and sensor systems, such as ATCCS. The end result is a vertical and horizontal integration of the digital battle space at the brigade-and-below tactical unit levels. CCTT XXI integrates FBCB2/ATCCS digital capability into CCTT and provides the digitized force with both a robust virtual combined arms environment for collective training and an experimentation environment for training development. CCTT XXI provides the most robust, technically and fiscally feasible environment for training complex multiple step digitization tasks prior to execution in the live environment.

Digital Battle Staff Sustainment Trainer (DBST). Allows ABCS to interface with training simulations in major brigade Command Post Exercises (CPX) in a staff exercise environment. DBST uses Janus as the maneuver driver and is currently being used as a rehearsal tool by units preparing for National Training

Center (NTC) and Joint Readiness Training Center (JRTC) rotations. DBST realistically portrays the Joint Surveillance Targeting Acquisition Radar System (JSTARS) and unmanned aerial vehicles (UAV) in the simulation. DBST provides a "wrap around" capability to allow a commander to fight his live unit at the same time he is fighting a simulated deep enemy or operating with simulated friendly units on his flanks. DBST also allows FBCB2 to be simulated by computer simulation.

Warfighters Simulation (WARSIM). WARSIM is the next generation simulation for use in providing U. S. Army command and staff training. It is being developed to replace the current legacy simulation systems, CBS and TACSIM. It will use advanced modeling and simulation techniques to train Army divisions through echelons above corps commanders and battle staffs. WARSIM is a key enabling simulation for the training of the Army's commanders and staffs. This program will provide the Land Warfare functionality for the Joint Simulation System (JSIMS), a joint initiative intended to create a common, seamless training environment for the Services and joint community. As such, there is a high degree of inter-dependence among JSIMS, WARSIM, and the simulation programs of the other Services. As TACSIM provides an intelligence simulation for CBS, WARSIM Intel Model (WIM) is the intelligence driver for WARSIM. It can replicate division through national intelligence collection sources. WIM supports training of corps and division command posts and their associated military intelligence (MI) staffs.

One Semi-Automated Forces (OneSAF). OneSAF is a composable, next generation Computer Generated Force (CGF) that will represent a full range of operations, systems, and control process (TTP) from entity to battalion level, with variable level of fidelity and support for all models and simulations domain (ACR, RDA, TEMO) applications with an emphasis on human-in-the loop and no human in-the-loop. It also will represent the physical environment and its effect on simulated activities and behaviors. OneSAF will be the future entity level battalion and below constructive simulation that, when linked with WARSIM and the CATT family of virtual simulators, will seamlessly integrate live, virtual, and constructive simulations into realistic synthetic battlespaces. OneSAF will represent C4I, combat, combat support (CS), and combat service support (CSS). Its fielding will significantly reduce exercise overhead.

Virtual Leader Effects Trainer (VLET). While CCTT provides virtual simulation training for mounted forces, VLET combines high-fidelity dismounted leader trainers with PC-based reconfigurable vehicle simulators to support leader development and the training of IBCT squads/crews, platoons, companies/troops, and infantry battalions/RST&A squadrons. The system will provide full-spectrum training to IBCT maneuver and maneuver support units. Initial VLET distribution will support each IBCT as well as the Armor and Infantry Centers.

Synthetic Environment Core (SE Core). The development and integration of a Synthetic Core (SE Core) technology

supports the development and fielding of the Army's virtual simulation program required by the Legacy, Interim, and Objective Forces. SE Core extends and expands the capability of the common virtual environment created by the interoperability of the current Close Combat Tactical Trainer (CCTT), the Aviation Combined Arms Tactical Trainer —Aviation Reconfigurable Manned Simulator (AVCATT-A), the Virtual Leader Effects Trainer (VLET), and the proposed solution for the Objective Force (Embedded Combined Arm Tactical Trainer (CATT)) to enable a common virtual environment. The SE Core acquisition strategy reduces the cost of developing and fielding stand-alone simulators by coordinating the development of system and non-system training requirements. The SE Core approach leverages the reusable hardware and software of the common virtual environment and merges the development of system and non-system simulation systems by establishing a framework for designating funding and acquisition responsibilities between the Training Mission Area (TMA) and the appropriate system Program Executive Officer (PEO) and Program Managers (PMs). The Objective Force XXI training system will feature a robust SE Core that integrates live, virtual, and constructive simulations. SE Core will provide commanders the ability to simultaneously train all battlefield operating systems, in real time, on the virtual terrain of choice, and under all operating conditions demanded of a force projection Army conducting military operations in a joint environment. SE Core will also enable combat, materiel, and force developers and analytic communities to test, evaluate, and refine new doctrine, weapons systems, and organizations in compressed time schedules, prior to "bending metal." SE Core will provide the common architecture and framework for the CATT program, i.e., linked armored/mechanized, aviation, air defense, fire support, engineer and virtual leader effects simulators. The adoption of SE Core as the Army's common virtual environment and infrastructure for the current and future CATT family to support Army Transformation will promote interoperability of virtual systems and ensure the most cost effective use of funds through maximum reuse of software, hardware, and infrastructure by reducing the time and money it takes to incrementally field separate CATT systems.

Fixed Tactical Internet (FTI). FTI allows digital units to conduct live training without having support from signal units every time a unit with digital equipment conducts field training. Lower FTI provides capabilities for FBCB2 equipped units to conduct training (battalion and lower). Upper FTI will allow battalion and higher units to conduct digital training in a live environment without having to deploy dedicated signal units.

Digital Multi-Purpose Range Complex Objective Instrumentation System and Targets. DMPRC-OIS provides new and modern ranges capable of training, testing and stressing today's Soldiers and their modern equipment with a realistic train-as-you-fight environment, using all available combat systems capabilities, and digitally integrating those systems to manage all forces undergoing individual and collective live-fire training and qualification.

Integrated Military Operations on Urbanized Terrain Training System (IMTS). IMTS provides a melding of three separate but similar thrust efforts into a combined umbrella program. These programs are the transition Military Operations in Urban Terrain (MOUT) sites, the Combined Arms MOUT Task Force training sites, and other MOUT facilities programs. The program will reduce acquisition and sustainment costs, leverage technologies and acquisitions, solve complex and common problems, foster Horizontal Technology Integration (HTI) through commonalties and standards, synchronize and integrate the collective efforts of the Common Training Instrumentation Architecture (CTIA) by leveraging near term requirements, and support the objectives of the Urban Operations Training Strategy.

Common Training Instrumentation Architecture (CTIA). CTIA is the Army's common training instrumentation architecture that is the underlining architecture for the homestation, CTC and deployed digital training instrumentation system across the Live Training Product lines (i.e. CTC—Objective Instrumentation System, DMPRC, Homestation and Instrumentation Training System, MOUT, One Tactical Engagement Simulation System), allowing for the seamless integration of constructive (One Semi-Automated Forces/WARSIM) and virtual simulations (Close Combat Tactical Trainer) into live digital training events. It provides the linkages and integration with Army operational C4ISR systems and architectures with Army training instrumentation systems. It provides the baseline training architecture for embedded training capability in the Objective Force.

One Tactical Engagement Simulation System (OneTESS). OneTESS provides a live environment tactical engagement simulation system that replicates weapon effects of combat systems in the conduct of collective training. It will provide the architecture for future systems to maximize embedded training capability within weapon systems; supports precision live combined arms force-on-force and force-on-target training exercises at Brigade and below at Homestation, Combat Training Centers, and deployed sites; and is compliant with the Common Training Instrumentation Architecture.

Homestation and Instrumentation Training System (HITS) Phase II. Hits Phase II is being reevaluated for an accelerated fielding. The HITS ORD is expected February 2002. HITS provides the capability to simultaneously support multiple training exercises for homestation and deployed forces. It provides objective data collection of unit performance (in force-on-force (FOF), force-on-target (FOT), live fire, and associated command post exercises). HITS supports CATS training and exercise events. HITS integrates live training with other simulation environments to provide representative training across battlefield functions and collate AAR materials from varied training support/simulation systems to provide a cohesive AAR package for associated training elements.

Intelligence Electronic Warfare Tactical Proficiency Trainer (IEWTPT). IEWTPT provides realistic Battle

Command training through an intelligence information environment. IEWTPT will be embedded in or strapped on individual MI tactical collection systems. It will provide training from the operator/crew level through the corps Military Intelligence battle staff.

Forward Observer Exercise Trainer (FOXS). FOXS provides quality training for MOS 13F skill levels 1-4, as well as a common task trainer for all Soldiers. The system will be High Level Architecture (HLA) interoperable and will operate in a stand-alone mode to train from one to thirty students in an institutional training environment. FOXS will operate at the unit level to train FOs without the use of live ammunition. It will be interoperable with other Combined Arms Tactical Trainers locally and via long haul networks. It will monitor performance and provide feedback in accordance with the Army AAR process.

Nonsystem TADSS that Support the Combat Training Center (CTC) Domain

Army Battle Command System (ABCS)-Integration. Enables CTC Instrumentation System to collect digital data to prepare the AAR. This program is critical in providing a bridge between the legacy and objective instrumentation systems. It enables the CTC legacy instrumentation systems to collect digital data for the preparation of AARs for ABCS-equipped units. One half of the Army's divisions will be so equipped by the end of FY06.

National Training Center Objective Instrumentation System (NTC-OIS). This system replaces aging components. It is CTIA based and One TESS compliant and provides digital functionality. Serves as basis for Joint Readiness Training Center and Combat Maneuver Training Center systems. Fielding is in FY06.

Combat Maneuver Objective Instrumentation System (CMTC-OIS). Replaces aging components. CTIA based and One TESS compliant. Provides digital functionality. Failure to fund will result in lack of a replacement system for CMTC instrumentation system which reaches wear-out in FY08.

Joint Readiness Training Center Objective Instrumentation System (JRTC-OIS). Replaces aging components. CTIA based and One TESS Compliant. Provides digital functionality. This is the replacement system for JRTC instrumentation system, which reaches wear-out in FY10.

Military Operations in Urban Terrain Objective Instrumentation System (MOUT OIS). Allows instrumented feedback to units for AARs. CTIA based and One TESS compliant, MOUT OIS interfaces with NTC, CMTC, and JRTC Objective Instrumentation Systems. Provides digital functionality.

Combat Maneuver Training Center Range Data Measurement Subsystem (CMTC RDMS). Equipment/software to collect and transfer real-time data and control commands from player unit, Simulated Area Weapons Effects/Multiple-Integrated Laser Engagement System I (SAWE/MILES II), to Core Instrumentation Subsystem (CIS)

and back. Data includes position location, weapon engagement, SAWE/NBC effects, etc.

OPFOR Surrogate Tank Vehicle (OSTV)/OPFOR Surrogate Vehicle (OSV). Both are based on M113A3 chassis with visual modifications to include an OSV turret that is driven by Bradley Fighting Vehicle components. Excess M60 thermal sights are utilized. (The OSTV replaces M551 Sheridans and M60 tanks used as surrogate tanks and the OSV replaces M551s and M113s used as surrogate BMPs.

OPFOR Combat Wheels. Change in operational environment reduces number of combat tracked vehicles, but increases wheeled systems. This system results in an ability to institute operational environment changes, which reflect changing real world conditions and provide full spectrum capability.

OPFOR Aviation. Provides OPFOR rotary wing aviation and Unmanned Aerial Vehicles (UAV). UH-1s are aging, near wear out, and scheduled to leave the inventory in FY04. There is no UAV program for OPFOR. This system will result in an inability to institute operational environment changes to reflect changing real world conditions and provide full spectrum capability.

National Training Center (NTC) Range Data Measurement Subsystem (RDMS). This system is composed of equipment and software to collect and transfer real-time data and control commands from player unit (SAWE/MILES II) to CIS and back. Data includes position location, weapon engagement, SAWE/NBC effects, etc. NTC Range Data Measuring System life cycle ends in FY04. Must be replaced prior to NTC OIS in FY06.

Combat Maneuver Training Center Observer Controller System (CMTC OCCS). Replaces Observer Controller SABER and SINGARS radios with Commercial Off the Shelf System. Makes 171 additional frequencies available for rotational units. This system enhances the CTMC's ability to assess unit performance in AARs and the unit's ability to use tactical radio systems in an operationally correct manner in the secure mode.

CMTC Single Channel Ground and Airborne Radio System(SINGARS). Provides infrastructure upgrades to SINGARS radio system used to monitor tactical units to provide input for AARs. Increases efficiency of radio network and frees frequencies for use by tactical units.

CMTC Live Fire (Interim). Provides an interim live fire instrumentation system for CMTC until the fielding of CMTC OIS in FY08. Currently, CMTC does not have an instrumented live fire capability.

CMTC MOUT Instrumentation Video. Provides a limited instrumented AAR capability for CMTC MOUT until the fielding of CMTC OIS in FY08.

CTC MCA Projects

National Training Center (NTC) MOUT Combined Arms Collective Training Facility. To support the contemporary operational environment, NTC requires a MOUT site of sufficient size to support combined arms brigade-level operations.

NTC "Star Wars" Building. NTC will require a new Training Analysis Facility to house their new objective instrumentation system.

Battle Command Training Program (BCTP) Seminar Facility. With the demolition of Bell Hall in FY05, BCTP loses their Seminar Facility.

National Training Center Expansion. The National Training Center at Fort Irwin provides realistic battlegrounds for training brigades to meet the challenges of the 21st Century. In the 20 years that NTC has been in operation, the speed and power of weaponry have increased significantly, requiring larger training areas, even while the military is losing training lands due to land restrictions or development. Therefore, the House Armed Services Committee conferees expanded the NTC by adding over 110,000 acres of open maneuver space in a manner that recognizes the Army's critical training needs as well as the needs of the environment. The Departments of Defense and Interior will look at a variety of conservation measures, such as acquisition of private and state lands; construction of barriers, fences, and other structures; and funding of research studies, to ensure compliance with the Endangered Species Act. The NTC Instrumentation System, to include Observer Controller Communications, will require expansion. Additional Military Construction projects are required and cost estimates will have to be developed.

Nonsystem TADSS that Support the Institution Domain

Satellite Communication (SATCOM) Principals Transformation Trainer (SPTT). SPTT provides a Defense SATCOM training device to meet or exceed U.S. Army Signal School as well as the Objective Force Communication Training requirement. It provides training to operators and maintainers in Military Occupational Specialty (MOS) 31S on principles of satellite communications and equipment.

Integrated Training System (ITS) (CSS TADSS). The ITS is an integrated, comprehensive maintenance training system that contains specific subsystems of part-task trainers, simulation devices, physical mock-ups, static displays, curriculum, and electronic classrooms with Interactive Multimedia Instruction (IMI) products that collectively will meet all current training requirements. ITS is also expandable/adaptable to meet future requirements. ITS provides seamless integrated maintenance training system to train military occupational specialties (MOSs) 63B, 63S, and 63W in the maintenance of both current and future wheeled vehicle systems. It has been designed for simplicity and reliability to provide organizational and direct support level maintenance.

Basic Electronics Maintenance Trainer (BEMT). BEMT provides basic electronics training of missile electronics repair and test, measurement and diagnostic equipment repair at Ordnance Missile and Munitions Center and School, Redstone Arsenal, and electronics maintenance repairer training at the Ordnance Electronic Maintenance Training Department at Ft. Gordon.

Advanced Morse Mission Trainer (AMMT). AMMT provides training for MOS 98H, Air Force, Navy and Marine Corps Morse intercept operators. AMMT will emulate the common remote system to support multi-mode collection training.

Basic Morse Mission Trainer (BMMT). BMMT provides training for MOS 98H, Air Force, Navy and Marine Corps Morse intercept operators.

Model Bridges. The Family of Model Bridges and Terrain Boards (FMBTB) provides complete scale models with removable bridge components that will provide a visual aid to students prior to actually erecting a full size bridge at a training site. Terrain boards will replicate, to scale, Major Training Areas (MTA), such as NTC and CMTC.

In addition, TRADOC has developed an Institutional Digital Education Plan (IDEP) to integrate ABCS training throughout all TRADOC centers and schools to support and sustain the U.S. Army's digitization strategy with appropriately trained Soldiers and leaders. The IDEP describes the intent for transition from the current interim New Equipment Training Team/ Central Technical Support Facility-based training system into the long-term solution: the TRADOC institutional training system. It identifies a digital training model and defines the categories of ABCS training appropriate for integration into TRADOC institutions through resident and distance learning applications, defines the anticipated end-state for the training system, and a transition plan to reach the objective system.

Conclusion

As world order, operational environment, character of military actions, and unit capabilities change, Army training must remain relevant. As the Army "transforms," so must training. The Army must train Soldiers and units for situations and missions they will face tomorrow. The Army must provide leaders, Soldiers, and units tough, realistic, multi-echeloned, and fully integrated training that will produce bold, innovative leaders to deal with complex situations, flexible Soldiers with the warrior ethos, and well-trained units. Soldiers of the 21st Century will be expected to achieve these results across the full spectrum of operations. The nature of future threats demands that the Army place its highest priority on training the nation's Soldiers.

Appendix 4: Army Distance Learning

Distance Learning (DL) is defined in AR 350-1 (draft) as the delivery of training to Soldiers and units through the application of multiple means and technology. The amount and kind of training appropriate for distance learning application will be determined by the tasks to be trained. DL allows students, leaders, and units centralized access to essential information and training. It represents a powerful capability in which the proper balance of course content and delivery technologies are provided when and where they will have the greatest impact on force readiness.

Description

The Army Distance Learning Program (TADLP) is a Department of the Army

program that was approved for implementation in 1996. TADLP is funded in FY98-FY10 to field DL classrooms and convert TRADOC courses to DL delivery media. The mission of TADLP is to improve training, enhance force readiness and support Army Transformation by exploiting current and emerging technologies in facilitating life-long learning and the development of self-aware and adaptive leaders through the delivery of the right training and education to the right Soldier and leader at the right time and place.

Documents

TRADOC Regulation (TR) 350-70 has been changed to better describe the DL training development process. Once finalized, the revised AR 350-1 will provide policies for Army DL. Interim guidance for student, course, and lesson management is contained in a policy message issued by the Department of the Army (DA) Deputy Chief of Staff for Operations and Plans (DCSOPS) in March 2001, Subject: Implementation of the Army Distance Learning Program. The TADLP Campaign Plan contains the requirements, policies, and management tasks to ensure the program's support of Army readiness. This Campaign Plan supports Army Transformation and digitization. It develops and leverages linkages between Army, other Service, and Department of Defense (DoD) programs to provide common training materials to Soldiers, leaders, and units. This assures access to training anywhere, anytime through the use of common technologies.

In May 2001 The Army senior leadership established a General Officer Steering Committee (GOSC) for the purpose of providing advice and recommendations on all Army DL programs and initiatives to assure The Army's investment in DL provides the intended impact on force readiness and well-being. In the near term, the focus of the GOSC is to develop strategy in support of Army Transformation, identify intermediate and objective states for TADLP, and identify and leverage complementary linkages between existing programs.

The Army program supports Executive Order 13111, "Using Technology to Improve Training Opportunities for Federal Government Employees," 12 January 1999, and the DoD Advanced Distributed Learning (ADL) Initiative.
The Army's program coordinates and integrates multiple programs and initiatives in areas where commonality exists while maintaining the uniqueness of each program. Currently, the major programs and initiatives being reviewed and assessed by the GOSC are TADLP, Distributed Training Technology Project (DTTP), Computer Based Training (CBT), Reserve Education and Learning (REAL), Army Continuing Education System (ACES), and Army University Access Online (eArmyU).

Additionally, numerous other programs are facilitating training opportunities for individuals and units via distance means. Examples include the Army War College Distance Education Program, The Reimer Digital Library, The Army Correspondence Course Program On-line, the Center for Lessons Learned Virtual library, and unit training courses.

TADLP is an approved Army Acquisition Program while the Army National Guard (ARNG) DTTP is a congressionally directed assistance program with an acquisition component. TADLP and DTTP complement each other but have different missions and objectives. TADLP focuses on military readiness training for Active and Reserve Component forces. The DTTP supports and extends TADLP while also supporting multiple ARNG missions to include military readiness training. The essential difference between the programs is that DTTP features a nationwide ARNG telecommunications Infrastructure (GuardNet XXI) designed to deliver voice, video, and simulation traffic to the National Guard in a multi-secure, robust, managed and reliable network.

TADLP and DTTP take the schoolhouse to DL centers in units, students in their homes, and Soldiers anywhere in the world, on-line or on-the-job. The essential components of TADLP are DL courseware, Digital Training Facilities (DTF), deployed training, and DL expansion of the Combat Training Centers (CTC).

The infrastructure for Army DL is a non-developmental initiative that leverages existing infrastructure and commercial off-the-shelf hardware to the greatest extent possible. The Defense Information Systems Agency (DISA) communications infrastructure is the primary source of network connectivity for the Active Army and USAR. GuardNet XXI, already in place, provides the communications infrastructure for all ARNG interstate telecommunications. These are supplemented by Internet, national commercial networks and satellite capability where approved.

Under the guidance of the TRADOC Program Integration Officer for TADLP (TPIO TADLP), approximately 850 TADLP and ARNG DTTP DTFs are programmed to serve training and self-development needs of the AC and RC. Soldiers can train at dispersed facilities such as ARNG armories, USAR Centers, Combat Training Centers, Classroom XXI facilities, their homes, deployed units, home station, and colleges and universities. The objective for DTF is to put 95% of all Soldiers within 50 miles of a classroom by FY06. As of December 2001, 434 of 850 Active, USAR, and ARNG DTTP DTFs have been fielded, resulting in 82% coverage of the Army.

The Classroom XXI Program (CRXXI)

Although separate from TADLP, CRXXI provides training modernization that enhances the TADLP DTF at Army resident schools. This program improves training provided through the schools and allows the broadcast of training to remote TADLP/DTTP DTFs deployed through Distributed Training Technology. In addition, CRXXI establishes Army standards for courseware development and playback, instructional technology capabilities that are Soldier centered, and design and architectural standards for classrooms. CRXXI is scheduled for completion by end FY09 with a total of 270 digital classrooms fielded.

Deployed Training

The Program Manager for TADLP fields DTFs that provide mission readiness,

professional development, sustainment, and lessons learned training to deployed units. There are eight deployable training facilities in Germany, Bosnia, Kosovo, Hungary, and the Sinai. Three courses, Hazardous Material (HAZMAT), Basic NCO Course (BNCOC), and Battle Staff NCO Course (BSNCOC), have been presented using these deployable facilities.

Courseware

Courseware is being redesigned, where appropriate, to include DL training phases/modules in multimedia format as the link between the Soldier and schoolhouse. Course media will include CBT, simulations, video teletraining (VTT), audio-conferencing, e-mail, chat rooms and videos. CBT includes CD-ROM and web-based training in both synchronous and asynchronous modes. Since the thousands of Army courses far exceed the resources available to accomplish their redesign for DL delivery, TRADOC, working with the other major Army commands (MACOM), has implemented a course selection and prioritization process. Under the current plan, over 575 courses will be redesigned for DL delivery by FY10. There are currently 92 courses (plus 73 currently under development) with DL phases listed in The Army Training Requirements and Resources System (ATRRS). As the system of record for Army training requirements, ATRRS is now capable of capturing DL training requirements, managing sites and student throughput, making reservations, and receiving student progress updates on DL courses posted by TRADOC and other training MACOM.

Over 414 functional and leadership courses are being redesigned into the Army Training System (TATS) courses to ensure that all components will train to a single standard. These courses provide a pool from which DL courses are created. The Army is programmed to redesign course content for DL delivery at the rate of 31 courses per year through FY02 and 47 per year through FY10. End state will be over 500 courses redesigned. Selection of courses for DL redesign is based on Army readiness requirements. In coordination with the Army Staff and MACOM, the master course list is reviewed and prioritized annually by TRADOC. Additionally, CBT offers over 1600, web-based information technology courses free of charge to the Army work force.

Conclusion

The end state goal for Army DL is to provide the right quality training and education to the right Soldier and leader at the right time and place. The way ahead as envisioned by the DL GOSC encompasses four concomitant actions: 1) Define the future strategy to train and educate all Army personnel. 2) Define the current inventory of automation equipment intended for delivery of DL content and identify the required optimal architecture. 3) Halt inefficient legacy work; maximize efficiencies; tie into Army Knowledge on Line; speed up implementation. 4) Develop metrics for DL, return on investment, and the overall investment in DL.